

WHAT IS CLAIMED IS:

1. A method for evaluating both activity and cytotoxicity of a compound in the same population of cells comprising the steps of:
  - (a) providing a target cell comprising a first reporter gene that monitors cell viability;
  - (b) adding a test compound to said population of cells;
  - (c) introducing a second reporter gene into said cells, wherein said second reporter gene is different than said first reporter gene, and said second reporter gene is indicative of the activity of a microorganism or cell-receptor and monitors the activity of said test compound;
  - (d) measuring the activity of said first reporter gene and said second reporter gene; and
  - (e) comparing the activity of said first reporter gene and said second reporter gene measured in step (d) to the activity of said first reporter gene and said second reporter gene measured in the absence of said test compound.
2. A method for evaluating activity and cytotoxicity of a compound in the same population of cells comprising the steps of:
  - (a) providing a target cell comprising a first reporter gene that monitors cells viability and a second reporter gene that is indicative of the activity of a microorganism or cell-receptor, wherein said second reporter gene is different than said first reporter gene;
  - (b) adding a test compound to said cells;
  - (c) measuring the activity of said first reporter gene and said second reporter gene; and
  - (d) comparing the activity of said first reporter gene and said second reporter gene measured in step (c) to the activity of said first reporter gene and said second reporter gene measured in the absence of said test compound.
3. A method according to claim 1, wherein step (c) is performed before step (b).
4. A method according to claim 1, 2, or 3, wherein said second reporter gene is indicative of the activity of a human immunodeficiency virus, hepatitis A virus, hepatitis B virus, hepatitis C virus, herpes simplex virus, human herpes virus, human rhinovirus, picornavirus, influenza virus, rhabdovirus, or papilloma virus.
5. A method according to claim 1, 2, or 3, wherein said second reporter gene is indicative of the activity of *Salmonella*, *Shigella*, *Yersinia*, *Mycobacterium*, *Listeria*, *Staphylococcus*, *Chlamydiae*, *Legionella*, or *Leishmania*.
6. A method according to claim 1, 2, or 3, wherein said first reporter comprises a humanized *Renilla* luciferase nucleic acid molecule that encodes a functional

luciferase polypeptide, wherein said nucleic acid contains humanized codons not found in wild type *Renilla reniformis* luciferase, and wherein said humanized codons comprise at least 15% of the humanized codons shown in the nucleic acid sequence of SEQ ID NO:1.

- 5     7.     A nucleic acid molecule encoding a functional *Renilla* luciferase polypeptide comprising a humanized *Renilla* luciferase nucleic acid molecule, wherein said nucleic acid contains humanized codons not found in wild type *Renilla reniformis* luciferase, and wherein said humanized codons comprise at least 15% of the humanized codons shown in the nucleic acid sequence of SEQ ID NO:1.
- 10    8.     A nucleic acid according to claim 7, wherein said nucleic acid comprises a humanized *Renilla* luciferase nucleic acid molecule that encodes a functional luciferase polypeptide, wherein said nucleic acid contains humanized codons not found in wild type *Renilla reniformis* luciferase and said humanized codons comprise at least 25% of the humanized codons shown in the nucleic acid sequence of SEQ ID NO:1.
- 15    9.     A nucleic acid molecule comprising the sequence of SEQ ID NO:1.
10.    A construct comprising a vector and nucleic acid molecule according to claim 7.
11.    A host cell comprising a nucleic acid molecule according to claim 7.
12.    A host cell of claim 11, wherein said nucleic acid molecule comprises the sequence of SEQ ID NO:1.
- 20    13.    A virus construct containing the nucleic acid molecule of claim 7.
14.    A virus construct according to claim 13, wherein said virus is a human immunodeficiency virus, a hepatitis A virus, a hepatitis B virus, a hepatitis C virus, a herpes simplex virus, a human rhinovirus, a picornavirus, an influenza virus, a rhabdovirus, or a papilloma virus.
- 25    15.    A kit comprising a nucleic acid molecule according to claim 7.